

## ABSTRACT

The present invention relates to radioactive magnetic fluids, process for preparing them and use thereof. Particularly, the present invention relates to the  
5 radioactive magnetic fluids for treatment or diagnosis of cancer, process for preparing them and use thereof.

The radioactive magnetic fluids of the present invention include the component of  $\text{Cu}^{2+}$  which radiates a  $\beta$ -ray and  $\gamma$ -ray. The  $\beta$  radiation can effectively kill the  
10 tumor cells. Since the  $\gamma$  radiation are easily imaged with  $\gamma$ -camera, the magnetic fluids can be gathered to the treatment site with the radiograph under external magnetic field. Therefore, the radioactive magnetic fluids of the present invention can be used for treatment of cancer with  
15 minimal side effects. Also, the tightly bonded decanoic acid and nonanoic acid layer of the present invention not only increase particle-particle repulsion but also take hydrophilicity, to disperse homogeneously and stably the magnetic nanoparticles in water. Also, carboxylic acid of  
20 the surfactant is exposed to outside, to prevent the magnetic nanoparticles from being oxidized by air.

Therefore, the radioactive magnetic fluids can be used as therapeutic drug or diagnostic reagent for cancer.